



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

The consideration of these, however, must be deferred until a subsequent installment of this study.

ARTHUR O. LOVEJOY.

THE JOHNS HOPKINS UNIVERSITY.

## A STATISTICIAN'S IDEA OF PROGRESS.

WALTER F. WILLCOX.

**F**EW convictions are more deep seated and more widely held in our modern world, especially in the United States, than the belief that man is progressing. Is the belief to be accepted and defended or is it a delusion, a mere idol of the tribe?

Before the question can be argued the nature of progress must be examined. Progress is a kind or species of change; it implies gradual alteration towards some limit. It does not necessarily imply improvement. The progress of consumption does not bring any improvement of the patient and to speak of an improvement of the disease is hardly intelligible. When Hogarth made his series of engravings on *A Rake's Progress*, the title did not imply that the last position of the hero in Bedlam was an improvement on the first, but merely that it was the culmination of a gradual process. Progress, then, is change towards an end and the end may be moral, immoral or non-moral. Progress depends upon the idea of what constitutes the completed series of changes; in other words, it is a subjective notion.

But scientific critics assert that nature knows nothing of ends or final causes and hence knows nothing of progress. If man be merely a part of nature, the idea of progress must be read into history and not read out of it. History, or a part of it, is interpreted in terms of progress as certain vibrations of the air are interpreted in terms of music. A measure of progress or even an argument about progress is as impossible as a measure

of harmony. If you feel it, that is enough; if you do not, no one can help you. Some such objection to the word seems to have been at the root of a significant change in Spencer's terms. He published his essay on "Progress" in 1857. In all later writings he avoided the word, substituting for it evolution. Although the problem cannot be escaped by closing the eyes, it seems necessary to admit that progress is a subjective term implying a goal or end and so is a human interpretation of events. The end may be expressed as self-realization, or happiness, or the good, or the greatest good of the greatest number, or social service. Its objective correlates are evolution, or differentiation or, best of all perhaps, adaptation.

After thus clearing the ground, let me return to the question, Is the belief in progress to be accepted or is it a delusion? The problem may be discussed either by one whose habit of thought brings him into daily contact with the deep things of life or by one who now and then ventures a plunge into the chaos underlying his chosen bit of the cosmos. To one who belongs to the latter class, as I do, the line of approach is determined by that field of the partly known from which he sallies forth, and so the question becomes, What is progress and what are the tests of progress as viewed by a statistician?

The students in some special field, as distinguished from philosophers and moralists, who have concerned themselves with the problem, fall into three main groups: the historians, the ethnologists, and the economists. The historians have sought to trace and thus to demonstrate human progress through the few thousand years of which some records survive. The ethnologists have tried to reconstruct in broad outline the history of mankind through prehistoric ages by inferences drawn from the remains of early man and his work, or from the present or recent condition of savage man, and thus to lengthen the base line along which progress may be measured. The economists have turned to the intensive study of the present

and recent past; they have chosen not the social telescopes of history and ethnology, but rather the social microscope of statistics. Each method has its advantages; there is no question of superiority or inferiority; but each student can use his own tool better than another's.

A statistician works or should work only with defined concepts. But he needs more than this. He must have a definition stated in terms that make it measurable. There must be units of some sort that can be counted or statistics will have none of it. Perhaps my meaning may be made clearer by an illustration. A few years ago, one to whom all branches of the English-speaking world listen with delight gave an address on the subject, "What is Progress?"<sup>1</sup> He concluded that "the ultimate test of every kind of advance is Happiness" and that "the test of human progress towards happiness would then be: Does the average man to-day, at the end of each year or at the end of his life, feel more inclined than the average man would have done two hundred or four hundred or six hundred years ago, to say that he would like to live the same life over again, because his pleasures in it have on the whole exceeded his pains?"

This is a familiar conception of progress and I have no desire now to question its validity. Under it the end is happiness, an increase in the amount of happiness is progress, a decrease is retrogression. In one respect the form of definition appeals strongly to a statistician; it is couched in terms of the average man. This notion is one with which statisticians have been wrestling for more than half a century, and unsatisfactory as the results have been, little as is yet known about the life and work and inclinations of the average man, statistics may fairly claim to know more about him than can be learned from all other sources of information. But happiness, the central idea of the definition just quoted, cannot be

---

<sup>1</sup> James Bryce, "What is Progress," *Atlantic Monthly*, vol. C, pp. 145-156 (August, 1907).

expressed in units that can be counted and thus the definition does not conform to the requirements of statistics. If happiness be the test and the only test of progress, a statistician can throw no light on the question. What is true of this definition is true of all the others that have been suggested. How then can the statistical method approach the problem at all?

When no exact or direct measure of the characteristic in question can be found it is a common device to take one or more measurable elements closely connected with it. Suppose the problem were to determine the position of the United States among the countries of the world in manufacturing. As the result of different comparisons it might be found that the United States was first in the production of iron and steel, second to the United Kingdom in the manufactures of textiles, first in the manufacture of leather and its products, first in the manufacture of food preparations, etc. It would then be necessary to assign weights to the several results and by that method combine them into one series.

So in studying progress a statistician would examine its various indexes, appraise their value and consider how far the results corroborated or contradicted one another. Following this procedure, the evidence of progress upon which the economists before Malthus centered their attention is the one I will mention first. That is the increase of total population. Adam Smith put it bluntly when he said: "The most decisive mark of the prosperity of any country is the increase of the number of its inhabitants." One hundred and fifty years ago the population of Europe was about one hundred and thirty million; it is now four hundred and fifty million and the population descended from European emigrants and now living in other parts of the world is more than one hundred million. The population of the earth is almost certainly increasing; that of Europe is unquestionably increasing rapidly; the rate of increase in the United States is more rapid still.

But is increase of numbers a test of progress? Certainly not a final and unquestionable one. No one would claim that Russia or India is progressing more rapidly than France. Yet there may be an intimate connection between progress and increase of numbers. If better adaptation to environment, or, 'more exactly,' increase in the number and complexity of the responses to environment in which life consists, be a mark of progress, as it is often said to be, and if such adaptation also tends to increase numbers, then there is ground for holding that progress is usually attended by an increase of numbers. The human race is the only one of the higher forms of life which is progressing and also the only one which is steadily and rapidly increasing in numbers. This increase in the last two centuries has been due almost entirely to the most progressive branch of mankind, the European, or Caucasian, or white race.

If progress be an increase of adaptation and adaptation results in happiness, then progress is usually attended, also, by an increase of happiness. Increasing numbers and increasing happiness may be viewed as usually, but not always, by-products of increasing adaptation and by measuring the changes in population, the only one of the three which can be measured, light is thrown upon the changes of the others.

Man derives most of his happiness from intercourse with his fellows. If numbers increase, intercourse increases at a compound ratio. There are now in the United States perhaps two hundred times as many persons as lived on the same area at the time of Columbus. The amount of human intercourse now in a year must be thousands of times as great as it was four hundred years ago. There seems to be ground for holding that happiness grows or tends to grow more rapidly than numbers.

Our first statistical test of progress, increase of numbers gives an affirmative reply to the question, Is man progressing? and Is the United States progressing?

The amount of human life on the earth may increase

not only by adding to the sum of lives, but also by lengthening each life. Lord Acton has called the latter the compendious test of improvement. We have no trustworthy knowledge about the length of life under savage conditions or under ancient civilization. The nearest approach to it with which I am acquainted is an estimate of the length of life in Roman Egypt among the classes wealthy enough to have their bodies embalmed, an estimate based on the ages at death of one hundred and forty-one persons on whose mummies the records have been found and deciphered. With some manipulation of the figures I reach the result that the average duration of life among wealthy classes of Roman Egypt was about twenty-two years, or less than what it now is among the general population of India, and perhaps twenty-five years less than at the present time in western Europe. Evidence which I cannot even summarize warrants the conclusion that the length of human life in civilized countries is rapidly increasing and that change in this direction is growing more rapid.

In this country the length of life is still unknown. In default of such knowledge, we must turn to the only state affording this information, Massachusetts. There the length of life is forty-five years. This is probably greater than the average for the United States, because the proportion of Negroes in the United States is nearly ten times as great as in Massachusetts and the length of a Negro's life is not more than two-thirds that of a white person's, and also because Massachusetts has long held a prominent and honorable position among the states for its attention to questions of public health and longevity.

In average length of life at the present time there are many countries which surpass Massachusetts and therefore probably the United States. They include England and Scotland, Denmark, Norway and Sweden, Holland, Belgium, and France. There are others, like Switzerland and perhaps Italy, in which life, while a little shorter

than in Massachusetts, is probably longer than the average for the United States.

The second statistical test of progress, the length of human life, gives satisfactory results for the countries of western Europe. It indicates that in Europe the Scandinavian countries are most advanced and Russia least. The length of human life in Norway, Sweden, and Denmark (52 years) is almost double what it is in Russia (28 years) and more than double what it is in India (24 years). To an American, however, the answer obtained by this test is less satisfactory than that by the first. The difference to our disadvantage is due primarily not to the shortcomings of our medical profession, but to the slow and imperfect development of the public health movement in this country and the comparative weakness of the safeguards thrown by society around the individual life.

Progress is often said to require physical and social uniformity in the population of the progressing nation. The number of races and languages in Austria-Hungary and in Russia is thought to hinder improvement. Clear-sighted students of the United States regard our racial diversities in the same way, and for that reason justify the exclusion of Chinese and Japanese laborers. Many believe even that the new immigration from eastern and southern Europe is harmful. This raises the difficult question, Is uniformity or multiformity, homogeneity or heterogeneity in a population most conducive to progress? Probably no general answer can be given. Excess in either direction is harmful and the mean is golden. Whatever definition be accepted for progress, it presupposes and rests upon sympathetic coöperation with one's fellows. Either diversities so great as to hinder this or similarities so great as to make it insipid are obstacles to improvement.

Yet under present conditions both in the world as a whole and in the United States, the dangers from diversity racial, linguistic, educational, religious, political, and in-



dustrial, seem to be greater than the dangers from uniformity. This is frankly an assumption. If it be admitted, it follows as a corollary that changes in the direction of greater uniformity, such as those to which I now pass, are an index of progress. If it be not admitted, the rest of my argument will not be persuasive.

Are racial diversities increasing or decreasing? Prior to about 1500 A. D. when the oceans ceased to be effective barriers to civilized man, the great human races were living in isolation behind the ramparts of ocean or desert and the differences between them were probably increasing. Now we may be at the opening of a period of racial convergence, due partly to the disappearance or decreasing importance of the backward races, partly to intermixture of races, partly to climatic influences. The various physical types seem to be coming more and more under similar conditions, and while this often spells disaster to the ill-adapted race, as when the American Indian is decimated by tuberculosis, yet it does reduce the diversities of experience out of which racial antagonisms arise.

In this country the changes are certainly in that direction. In 1790 the population of what is now the United States, including an estimate of the number of wild Indians, was about seven-tenths white, one-sixth Negro, and one-eighth Indian. During the one hundred and twenty years between 1790 and 1910, the proportion of Negroes fell from one-sixth to one-ninth, that of Indians from one-eighth to one-thirty-third, but that of whites rose from seven-tenths to nearly nine-tenths. The country has been growing more homogeneous racially and the change is still in that direction. Between 1900 and 1910 the proportions not only of Negroes, but also of Indians and Chinese decreased and the proportion of Caucasians or whites increased. The Negroes in the United States are twenty-four times as numerous as Indians and Mongolians combined, are increasing steadily and rapidly, and are intimately mingled with the white population.

Their relative decrease in the nineteenth century resulted from two sorts of change. In 1790 the two parts of the country separated by Mason and Dixon's line had almost equal numbers of inhabitants. But from the start the North thrived more than the South, and by 1860 had a population exceeding that of the slave states, Negroes included, by more than seventy-five per cent. During that period as a whole the southern Negroes increased faster than the southern whites and the steady decrease in the proportion of Negroes in the country was due to the more rapid rate of increase in the population of the North. But since the Civil War the difference in the rates of growth of North and South has dwindled and disappeared. In the decades 1890 to 1900, and 1900 to 1910, for the first time in our national history, the population of the southern states increased faster than that of the northern. But it is the southern whites alone who are setting the pace. During the twenty years 1890 to 1910, the increase of southern Negroes was 29 per cent. and of southern whites 56 per cent., or nearly twice as rapid. This divergence makes it likely that by the close of the twentieth century the Negroes in the south, who are now one-third of the population, will not be more than one-sixth and that in consequence the people of that section and of the country will have become racially more homogeneous than they are now.

While the proportion of whites in the United States is slowly but steadily increasing, this part of the population is becoming perhaps less uniform in physique. A marked change in the character of our immigration began about a generation ago. We may admit that the immigrants of to-day have wider physical differences among themselves and from the resident population than they formerly did. But the more important question relates to the direction and rapidity of change. Do these physical diversities continue and perpetuate themselves in children and grandchildren? Or do they dwindle and disappear? Provisional results of the first careful inves-

tigation into this problem have recently been given to the public. They point to the following conclusions not hitherto suspected. (1) Immigrants coming to this country and living in the crowded parts of New York City have children the shape of whose head departs widely from that of their parents. (2) Where the parental type is long-headed, or dolichocephalic, the children are less dolichocephalic; where the parental type is round-headed, or brachycephalic, the children are less brachycephalic. (3) The departure from the ancestral type appears even in cases where the children born abroad have been brought to this country in early childhood; it is more marked among children born in this country and the longer the interval between the arrival of the mother and the birth of the child, the more the shape of the child's head differs from that of its parents. (4) The changes are great enough to make the difference between the shape of the head among a round-headed stock, like persons of east European Hebrew descent born in the United States, and a long-headed stock, like persons of Sicilian descent born in the United States, less than the difference between either group of children and their parents.

These results are the more surprising because the shape of the head has been thought an extremely persistent characteristic, controlled almost entirely by hereditary influences and very little by environment. Although far from conclusive, they seem to warrant at least a suspense of judgment upon that point. If they could be accepted at their face value, they would show that the process of physical assimilation of immigrants begins sooner, progresses more rapidly, and affects the whole system more radically than has hitherto been believed. A decrease of physical diversity in the American people is assumed to be a mark of progress. That diversity resulting from race has decreased and is decreasing. About that diversity resulting from immigration no answer can be had. It depends upon the comparative in-

fluences of immigration and assimilation on the national physique. The scientific measurement of these is still in its infancy.

Passing from physical to social assimilation, I inquire whether we are becoming less exclusively an English-speaking folk. This question takes on two forms; first, are the groups of non-English-speaking people whose ancestors have been for generations in the country becoming more numerous? and, secondly, are the recent immigrants who cannot speak English transforming us into a polyglot folk? The two main groups of non-English speaking native American stock are the Pennsylvania Dutch and the Louisiana creoles. Those of the former class who cannot speak English decreased by one-half between 1890 and 1900 and are now only 20,000. The Louisiana creoles are three times as many and slowly increasing, but not so fast as the population around them. These remote linguistic islands of debased German and debased French are not likely long to withstand the persistent friction of the sea of English which surrounds and is engulfing them.

The problem of Anglicizing the language of our swarms of immigrants is far larger and more difficult. In 1900 there were about six and one-half million persons in the United States who had been born in countries where English was not spoken. But of these more than four-fifths claimed ability to speak English. No doubt in many cases that language was most imperfectly understood and was murdered in the speaking. Yet the first steps are the hardest and they had been taken. The number who claimed to speak English was about equal to the number who had been in this country eight years, so on the average it takes about eight years for an immigrant who arrives ignorant of English and usually as an adult to learn enough of our language to claim a speaking acquaintance with it.

More important still is it that of our foreign born population the proportion able to speak English was

much higher in 1900 than in 1890. The process of teaching English more than kept pace with the flood of new arrivals. And even when the immigrant fails to learn English, his children do not. Among children born in this country of parents who came from non-English speaking countries, about 98 per cent. speak English, and in New York, where about three-fourths of the immigrants arrive, only one child in a thousand born in this country but of foreign-born parents is unable to speak English. No doubt the English is often, if not usually, poor and debased. In this as in almost every other case of assimilation, each side loses something.

What meager evidence is available seems to indicate that our population is not growing more heterogeneous, physically or linguistically, as a result of immigration.

Another menace to needful uniformity in our population and thus to progress is found by some in the illiteracy of recent immigrants. They fear that the uneducated and unambitious people of eastern and southern Europe who have been arriving in large and increasing numbers will become a dangerous proletariat. No doubt the majority of these immigrants are unlettered even in their own languages. No doubt that after they arrive they have little leisure or opportunity to gain the elements of a book education and most of them continue through life unable to read and write. But with their children the case is different. They show quite as much energy and zeal in learning to read and write as do the children of the native stock. Indeed the figures do not reveal any significant difference between the prevalence of illiteracy among children of Americans by birth and children of immigrant Americans in the same communities.

If the danger of developing a permanent illiterate class were serious, it would manifest itself in an increasing proportion of illiterates in the population. But that proportion is decreasing in the country as a whole and in all but two of the States. Perhaps the best test of the

efficiency of the public school system in reducing illiteracy is found in the proportion of children ten to fourteen years of age who are able to read and write. Older persons are products of an ancient and in many cases a foreign school system. But children of this age are just out of school or out of the grades where reading and writing are taught. To find that with the exception of only two states in which the proportion did not change, the per cent. of children able to read and write was greater in 1910 than in 1900 is to hit upon an evidence of progress and of increasing homogeneity.

On the question of religious homogeneity or heterogeneity the statistical evidence is meager and unsatisfactory. It comes from two Federal inquiries into the statistics of churches. These show that the proportion of church members in the population over ten years of age increased from 43 per cent. in 1890 to 51 per cent. in 1906. The proportion of this population who were members of some Protestant church increased slightly and the proportion who were members of the Roman Catholic Church increased more rapidly. Whether this growth of religious diversity is more than offset by the increase of religious toleration is a question upon which the statistical method throws no light and which must be answered, if answered at all, upon other evidence.

The argument has pointed towards an increasing uniformity, racial, linguistic, educational, and possibly physical and religious, in the population of the United States and, if under present American conditions greater uniformity in these respects be conducive to progress, the argument tends to support the general opinion that the country is progressing.

But these differences are far from exhausting the list and perhaps are not the most important. The question of industrial or economic differences and their increase or decrease is not to be ignored.

Perhaps we may assume that a political democracy has not worked well unless it has been based upon an indus-

trial democracy and that the success of the American experiment hitherto has been closely connected with the democratic nature of American industrial organization. If that assumption be admitted, the question whether the population is crystallizing into industrial groups with diverse and sometimes antagonistic interests is of the first importance for our subject.

In agriculture there is a marked increase of the two forms of tenant farming, renting for cash, and renting on shares. In 1860 six-eighths and in 1910 only five-eighths of the farms of the United States were tilled by their owners. In 1860 two-eighths and in 1910 three-eighths of the farms were tilled by tenants. This increase in tenant farming and decrease of farming by owners went on between 1890 and 1900 in every State of the Union. Perhaps in the great majority of cases the tenant farmers have risen from the class of agricultural laborers rather than fallen from the class of land owners. Nevertheless the change indicates that the advance from farm hand to farm owner is harder and takes longer than it used to do when land was cheaper and less capital was needed to run a farm. It suggests the development of economic classes and the possibility at least of class antagonisms which may be found a serious check upon progress.

In manufacturing there is no numerous class, corresponding to that of tenant farmer and in a position between the independent producer and the wage-earner. There are only two great classes, employers and employees. Nor has the discussion turned upon the increase in the proportion of wage-earners, although such a change has probably occurred. It has centered rather upon the average amount of compensation and the alleged increase of wages.

The question of determining whether wages have risen or fallen is more complicated and difficult than many who talk fluently about it imagine. To show how true this is, let the question be made specific, Did money wages

in manufacturing establishments increase between 1890 and 1900? These dates are chosen because there is far more information regarding them than regarding any earlier or more recent years.

The United States Bureau of Labor concludes that average wages per hour in 1900 were higher than in 1890. This evidence is unquestioningly accepted by those who believe in the increase of wages. It is commonly forgotten that two other investigations of wages covering the same period were made by the Federal Government. The United States Census Bureau gathered detailed information regarding more than 100,000 wage earners in manufacturing establishments, and the figures seem to warrant the conclusion that the average weekly wage was about the same in 1900 as in 1890. The same Bureau gathered information regarding all the manufacturing establishments in the country in 1890 and in 1900 and these figures seem to warrant the conclusion that the average annual earnings of the five million wage earners in manufacturing were slightly less in 1900. One inquiry shows an increase of 5 per cent. in wages per hour, the second a stationary condition of wages per week, and the third a decrease of 2 per cent. in annual wages, all for the same decennial period. If we could suppose that along with the increase of pay per hour there had been a decrease of hours of labor per week and also of days of labor per year, the three conflicting results might thus be reconciled. But there seems to be little evidence in support of this conjecture.

To judge whether my effort to reconcile these apparent contradictions is successful, one must have in mind a few details about wage statistics. Ordinarily they are gathered from a list of establishments selected as typical or representative and with the main purpose of ascertaining the changes in wages of specific occupations. Thus the hourly wages of carpenters in the building trades were reported by the Bureau of Labor as 12 per cent. higher in 1900 than in 1890. But this method, even if it



could be extended to include all establishments, would not provide a complete and perfect picture of wage statistics. Indeed it is mathematically possible that the average wages paid in each occupation in the United States were higher in 1900 than in 1890 and yet that the average wages in all occupations together were lower in 1900 than in 1890. To illustrate and explain this statistical paradox, an actual case may be chosen from a simpler field. The proportion of children in Arizona unable to write was a little greater in 1900 than in 1890. And yet in each class of children taken separately, namely, the native white, the foreign-born white, and the Indian and Mongolian, the proportion unable to write was smaller in 1900 than in 1890. How could the proportion be smaller in each class taken separately and yet larger in all classes together? The explanation of the paradox lies in the fact that many Indian children escaped enumeration in 1890 and that their illiteracy rate, while lower in 1900 than in 1890, was high enough in 1900 for the increased proportion of that class to mask the progress which had been made since 1890 in every element of the population.

The possibility of a similar paradox in wage statistics makes it important to supplement the Bureau of Labor method which is confined to changes of money wages in a larger or smaller number of specific occupations by a method which examines the wages of the entire wage-earning class. No such method has ever been tried for the United States as a whole, but there is something which approaches it. In 1890 and in 1900 inquiries were made by the Census Bureau of each manufacturing establishment into the amount of wages paid during the business year and the average number of wage-earners employed. From the results the average annual earnings of wage-earners in manufactures have been computed. The result is to show a decrease from \$445 in 1890 to \$438 in 1900. In the official publication dealing with these figures we are warned "that the attempt to

obtain the average earnings from the census figures . . . is not justified under any circumstances." In support of this conclusion the Report calls attention to important changes of method first introduced in 1900 and vitiating the comparison with 1890. There is no doubt that these changes were improvements and needed improvements. But that they make comparisons entirely misleading is not proved. The important changes were two, one of which, if introduced in 1890, would have reduced the figure of average earnings for that year, while the other would have increased it. I do not believe that the two combined were potent enough to make comparisons entirely unsafe. Whether that be so or not, this method of securing wage statistics for all wage-earners in manufacturing establishments is an almost indispensable supplement of the representative method and when properly used gives information quite as important and obtainable in no other way. In the case before us I suggest that average money wages in manufacturing establishments may have been somewhat less in 1900 than in 1890, and that this view may easily be reconciled with the conclusion of the Bureau of Labor regarding an increase of wages in given occupations, if only it be supposed that unskilled and low-paid labor increased more rapidly than highly paid labor between 1890 and 1900. Regarding such a change we are not left to conjecture alone. A classification of the breadwinners of the United States into four grades, proprietors or independent workers, the clerical class, skilled laborers, and unskilled laborers, has been made on the basis of the returns of occupations in which they were engaged. Such a classification is very difficult and inevitably exposed to a wide margin of error. But even so, when the analysis is made under the same principles and by the same person for successive censuses, the results are comparable and indicate the probable trend of change. The study to which I refer was published before the results of the count of 1900 were known, but it has since been continued to include those

returns. The figures Mr. Hunt has sent me from the Census Bureau indicate that the proportion of unskilled laborers in manufacturing was greater in 1900 than in 1890. The most probable conclusion is that there was a slight decrease of earnings for all wage earners and at the same time a slight increase of earnings for most of the specific occupations between 1890 and 1900, and that these two antithetic results are not inconsistent because the disproportionate increase of unskilled and low-paid labor more than outweighed the rise in wages for the specific occupations. Another important inference has been drawn. The apparently stationary wages shown by one inquiry is the result of a decrease in the proportion of those receiving unusually high wages and of those receiving unusually low wages, and an increase in the proportion of persons receiving average wages. The net result indicated by the figures of all three investigations taken together is no progress in the money wages of wage-earners as a whole between 1890 and 1900 and a hardening of the class line between wage-earners on the one side and salaried employees, independent workers, or the proprietor class on the other.

In agriculture and manufactures the lines between economic groups, like landlord, tenant, and agricultural laborer or employer and employee are deeper and more permanent than a generation ago. The growth of such diversities may be a serious menace to homogeneity and so to progress.

A disproof of progress, if not indeed a proof of retrogression, is found by some in the decay of family life and family virtues, which they find revealed if not proved by an alarming decrease of births. Regarding births we have unfortunately no direct information. In its absence a substitute has been found by comparing the number of children under five years of age with the number of women less than forty-five or fifty years of age. Such a comparison can be made for ten-year intervals between 1850 and 1900 and by the help of estimates I have car-

ried it back to 1790. If the number of living children to each one thousand adult women in 1900 be taken as 100 per cent., the corresponding number in 1790 was 179 per cent.; or changing the method of comparison, the proportion of children to women in 1900 was only 56 per cent. of what it was in 1790. France is the European country in which a similar change started earliest and has advanced farthest. French figures of birth rate go back to 1806. The present birth rate in France is 69 per cent. of the birth rate of ninety years ago; the present proportion of children to adult women in the United States is 55 per cent. of that proportion ninety years ago, indicating that probably the decrease of births has been more rapid in the United States than in France.

This change seems to many a lamentable one and evidence of social degeneration and decay. Without denying or minimizing its grave and threatening aspects, I may venture to suggest that some such change was almost inseparable from the steady and rapid increase in the length of human life. If the birth rate had not fallen when the average span of life was lengthening, the population both of Europe and of the United States would have increased even faster than wealth or food. The standard of living would have fallen instead of rising. It is the decline in the birth rate and that only which has enabled mankind to grip and hold fast the advantages secured by industrial advance and the lengthening of human life. The danger to progress from a declining birth rate springs not from the resulting check to increase, but rather from the danger that those persons best qualified by nature to transmit qualities of social value to the next generation are likely to have few children. President Eliot's figures indicate that one hundred Harvard graduates of 25 to 30 years' standing have not more than seventy-five living sons, and the evidence from various sources shows that in the population of the northeastern states, excluding the immigrants and their children in the first generation the deaths prob-

ably exceed the births. The United States in common with many other modern societies is apparently showing a tendency to increase from the groups with less prudence or self-control than the average and thus possibly to eliminate the most valuable lines of descent somewhat as the monastic system has been said to do.

Another menace to progress is the prevalence of divorce in the United States. Apparently about one marriage in twelve now ends in a divorce, and the increase during the forty years for which records exist has been so great that another century of as rapid change would probably see half of the marriages contracted in the United States terminated by legal decree.

The argument thus far has led to the following results:

Progress is a subjective term necessarily implying change towards some end or goal. Those who deny the existence of any ends have no right to use the word progress. If progress be merely a subjective term, statistics can throw no light on the question of human or national progress because all such ends as happiness, or self-realization, or social service are incapable of statistical measurement. Various objective characteristics of progress, like adaptation, or evolution, or differentiation, have been proposed and seem often, if not always, to be associated with changes generally regarded as progressive.

Statistics measures such subordinate characteristics as are accessible to it and are correlated with some deeper immeasurable characteristic. From the result of this measurement it infers the presence or absence, increase or decrease of the inaccessible characteristic.

Increase of numbers is far from an ultimate end. But it is an evidence of increased adaptation and also of a multiplication of human intercourse and in both ways an evidence of increased happiness. The population of the earth is increasing; that of Europe is increasing rapidly; that of the United States more rapidly still.

Length of life is not an ultimate end. But untimely

death is an evidence of maladaptation, a great cause of unhappiness to survivors, and an economic waste. To increase the proportion of children who survive to maturity and old age is probably to increase happiness and social service. The length of human life is rapidly increasing in all civilized countries where it has been measured and probably in the United States where it has not. But in at least eight countries of Europe the length of life is greater than in Massachusetts and probably greater than in the United States.

Either uniformity or multiformity in a population may be so great as to be an obstacle to human or national progress. But under present American conditions changes in the direction of uniformity seem likely to be changes in the direction of progress.

Changes in racial types since 1500 A. D. seem to be in the direction of convergence through the decrease or disappearance of widely divergent forms, the intermixture of races, and climatic influences.

Racial homogeneity of the population of the United States is steadily increasing.

Whether the greater divergence of physical type among recent immigrants is an influence towards greater physical diversity in the total population is unknown. Slight evidence indicates that the modification of physique among the children of immigrants may be progressing with a rapidity hitherto unsuspected.

We are not becoming a more polyglot folk as the result of immigration.

We are not becoming a more illiterate folk as the result of immigration.

The proportion of church members in the adult population is rapidly increasing, and that membership is becoming more evenly divided between Catholic and Protestant.

There is evidence that economic or industrial classes are developing and the lines between them hardening.

The proportion of farms cultivated by tenants is rapidly increasing in all parts of the United States.

The contradictory evidence regarding the trend of wages in manufacturing establishments between 1890 and 1900 is best explained by concluding that wages in most occupations rose slightly; that wages in all occupations taken as one group fell slightly; that this was due to the disproportionate increase of unskilled and low-grade laborers; that unusually high and unusually low wages were both less common in 1900, and wages near the average were more common.

The very rapid decrease of the birth rate and the very rapid increase of the divorce rate are disturbing and seem to constitute a menace to progress.

The net result is to indicate for the United States a rapid increase of population and probable increase in length of life, an increase in racial uniformity and perhaps in uniformity of other sorts connected with immigration, and at the same time a decrease in uniformity of economic status and income and a probable decrease in the stability and social serviceability of family life. Some of these indications look towards progress, others look towards retrogression. As they cannot be reduced to any common denominator, the statistical method is unable to answer the question with which we started.

Allow me in closing to abandon both the method and the problem. Here as often the indirect and unexpected results of an investigation are more suggestive than the direct results. The inquiry leads by a new path to a familiar conclusion, that the main problems which we as a people are now facing and seem likely to face are widely different from the main problems of the past.

A political democracy and educational opportunity for all cannot now be justified, if indeed they ever could, on the theory that all individuals are equally endowed by nature, but rather on the theory that democracy and universal education are selective influences whereby a modern State chooses its leaders from a larger number

and with better knowledge of their qualifications than are possible under competing systems of government or of education. They presuppose a certain fluidity of industrial and social organization. If the lines between economic classes are deepening and hardening, as our evidence indicates, strenuous efforts must be made to preserve the institutions we have inherited. This requires a new spirit of responsibility for others, and of social service, a new realization of our debt to past generations and of our obligations to the future. The changes in this direction are numerous and important. The public health movement emphasizes the responsibility of society for unsanitary conditions and its duty to restrain the liberty or license of some individuals for the common good. The conservation movement emphasizes the communal ownership of the unappropriated resources of the United States and society's duty to obtain a larger share than hitherto of the proceeds from these resources and to minimize waste even at the risk of putting a break now and then upon industrial expansion. The movement for shorter hours of labor, better conditions of employment and higher wages, while it likewise may check the rapid accumulation of wealth, claims to more than offset that evil by contributing to a juster distribution of the proceeds between various industrial groups. The growth of an interest in ancestry, exaggerated if not absurd as some of its forms may be, emphasizes the dependence of each person on his inheritance from the past, his responsibility to transmit that inheritance unimpaired to the future, and the primary importance of the family in all permanent social life. The increasing study of the political and industrial systems of foreign countries and the growing attention paid to the results of these studies is an indication of the rapid approach of American conditions towards those of western Europe.

The economic problems of present and future importance are less exclusively those of production and more



largely those of distribution; the political problems are those growing out of an effort to harmonize our recent industrial changes with American political traditions and political theories.

WALTER F. WILLCOX.

CORNELL UNIVERSITY.

---

## THE PROBLEM OF CHRISTIAN ETHICS.

JOHN M. MECKLIN.

SOMEWHERE in his interesting book, "Saint Augustine and his Age," Mr. McCabe remarks that in writing his *Confessions* Augustine was guilty of a "fore-shortening of the psychic perspective." By this he means to say that the theologian has read into the comparatively innocent deeds of his boyhood his later and sterner conceptions of human nature, and the result is a distortion of the actual facts. A process very similar to this may be traced in many of the modern interpretations of Christian ethics, where the moral ideal is interpreted in terms of the theoretical and formal elements of Greek or modern ethics, and a fundamental identity both as to form and content is assumed to exist between them. We are told that "the advance of Christianity upon Paganism does not consist in a 'reversal of all the moral values of Paganism,' in the absolute condemnation of its fundamental principles. It is the fulfillment rather than the negation of Pagan morality: there is an identity beneath all the difference; . . . an identity of essential spirit and point of view. Develop the deeper implications of Pagan morality and you have the Christian morality."<sup>1</sup>

This assumption of "an identity of essential spirit and

---

<sup>1</sup> Seth, "On Certain Alleged Defects of Christian Morality," in the *Hibbert Journal*, VI, p. 116.